

REMARKS/ARGUMENTS

The Office Action mailed July 1, 2003 has been carefully reviewed. Reconsideration of this application in view of the following remarks, is respectfully requested. The claims presented for examination are claims 1-16.

35 USC 103 Rejection

In numbered paragraph 3 of the Office Action mailed July 01, 2003, claims 1, 2, 4, and 8-12 were rejected under 35 USC 103(a) as allegedly being unpatentable over the Pethig et al reference (WO 97/34689) in view of the English translation of the Yatsunami reference (JP 2000125846), the Ager et al reference (WO 98/10869), and the Suehiro et al reference (J. Phys. D. Appl. Phys. 31, pages 3298-3305).

The Pethig et al reference shows, "A water sample, having been passed through a simple filter to remove large debris, is fed into inlet channel 1. Here particulate matter in the sample would experience a travelling electric field (TWD) to convey the particles into Trap T1, where they are dielectrophoretically trapped onto a set of castellated microelectrodes. Meanwhile, a sample of latex beads, coated in an antibody targeted to a specific microorganism, is fed into inlet 2. These beads also experience a travelling electric field along conveyor track X into Trap T2. Trap T2 is of a selective nature and, at this time, configured to trap the latex beads. Having trapped the beads, the particles stored in Trap T1 are released and moved through Junction JB and into Trap T2. Here an appropriate electric field is applied to the electrodes to attract both latex beads and microorganisms to the immobilizing electrodes. This trapping action rapidly promotes the reaction between the desired microorganism and the antibody coated beads. Non-microorganism particles experience a travelling field which will move them out of Trap T2 and along conveyor track Z to a waste outlet 8.

The sample now comprises a mixture of bead-organism complexes and unreacted organisms and beads. On releasing all the trapped particles (reacted and non-reacted) from Trap T2 the particles travel towards Junction JC, where particles which are not beads or bead-complexes are drawn along conveyor track Y and, via junction JA, trapped at Trap T1. The remaining particles continue to travel towards Junction JD where bead/organism complexes are directed towards the rotation chamber ROT 1. Any particles left (unreacted beads) are directed towards the waste outlet. Each trap consists of a channel 10 with transverse electrodes and signal supply strips running alongside the channel and connected to the transverse electrodes at perforations in the insulating "bank" as shown."

The Yatsunami reference shows a, "device for measuring the number of microorganisms is equipped with a cell capable of introducing a liquid containing the microorganisms and equipped with plural electrodes, and electrophoresis power source circuit for charging an alternate electric voltage for generating the induced electrophoretic force in the cell between any of the electrodes...."

The Ager et al reference shows a system wherein "particles are separated according to their dielectrophoretic characteristics and electrorotation characteristics by the use of a travelling wave separation in which they flow from a departure point at an inlet towards at least two destinations at outlets and are deflected toward one or other outlet according to their said characteristics by a travelling wave field set up on an array of electrodes, each electrode running generally in the direction of flow."

The Suehiro et al reference shows, "a three-dimensional grid electrode system, in which a biological cell can be precisely moved or positioned by positive and negative electrophoresis. The electrode system consists of two glass plates, on which parallel strip electrodes are fabricated, placed together with a

spacer between them so that their electrodes face each other and cross at right angles to form the grid.”

Applicants respectfully traverse the rejection of claims 1, 2, 4, and 8-12 under 35 USC 103(a). Under MPEP §2142, there are three requirements to establish a prima facie case of obviousness. (1) There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. (2) There must be a reasonable expectation of success. (3) The prior art reference (or references when combined) must teach or suggest all the claim limitations. It should be noted that the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Applicants respectfully submit that the rejection fails under the obviousness test. The rejection fails under prong 1 of the obviousness test because there is no suggestion or motivation in the prior art to combine the Pethig et al reference, the Yatsunami reference, the Ager et al reference, and the Suehiro et al reference. Under MPEP §2143.01, “obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art.” *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Applicants respectfully submit that the rejection also fails under the second prong of the obviousness test because there is no reasonable expectation of success of the claimed combination. The Pethig et al reference operates because each trap consists of a channel with transverse electrodes and signal

supply strips running alongside the channel and connected to the transverse electrodes. To modify the Pethig et al reference to introduce electrodes of the Ager et al reference wherein particles are separated according to their dielectrophoretic characteristics and electrorotation characteristics by the use of a travelling wave separation set up on an array of electrodes, each electrode running generally in the direction of flow would modify the Pethig et al system without any reasonable expectation of success. To modify the Pethig et al reference to introduce electrodes of the Suehiro et al reference consisting of two glass plates, on which parallel strip electrodes are fabricated, placed together with a spacer between them so that their electrodes face each other and cross at right angles to form the grid would modify the Pethig et al system without any reasonable expectation of success.

Applicants respectfully submit that the rejection also fails under the first and third prong of the obviousness test because only through impermissible hindsight would motivation be found to combine the Pethig et al reference, the Yatsunami reference, the Ager et al reference, and the Suehiro et al reference. MPEP §2142 states "the tendency to resort to 'hindsight' based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art." Also, under MPEP §2143.01, "the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

Allowable Subject Matter

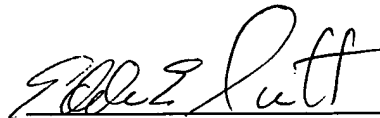
In numbered paragraph 4 of the Office Action mailed July 01, 2003, claims 3, 5-7, and 15 were indicated to be allowable if rewritten in independent form.

Applicant appreciates this indication of allowability and requests reconsideration of claims 1, 2, 4, and 8-12 in view of the foregoing arguments.

SUMMARY

The undersigned respectfully submits that, in view of the foregoing remarks, the rejections of the claims raised in the Office Action mailed July 1, 2003 have been fully addressed and overcome, and the present application is believed to be in condition for allowance. It is respectfully requested that this application be reconsidered, that the claims be allowed, and that this case be passed to issue. If it is believed that a telephone conversation would expedite the prosecution of the present application, or clarify matters with regard to its allowance, the Examiner is invited to call the undersigned attorney at (925) 424-6897.

Respectfully submitted,



Eddie E. Scott
Attorney for Applicant
Registration No. 25,220
Tel. No. (925) 424-6897

Livermore, California

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